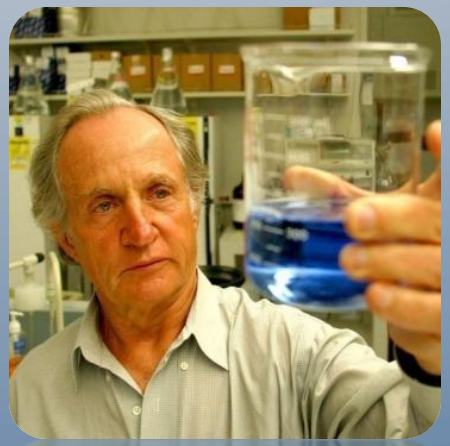
Energy Cluster Accelerator Partnership:
Benchmarks, Milestones, and Next Steps

presented by: Salt Lake Community College

Utah Cluster Acceleration Partnership (UCAP)

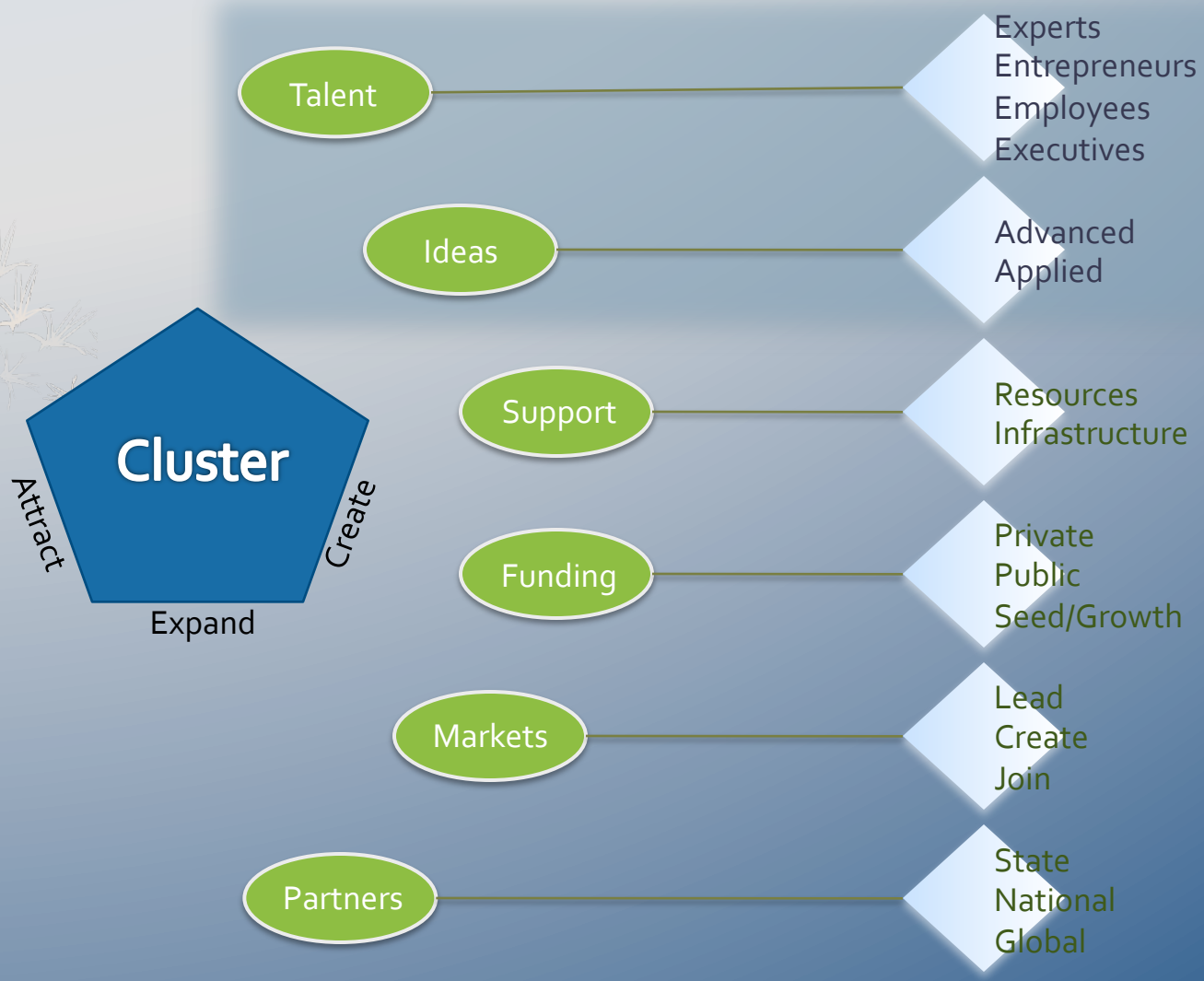
- Accelerate Economic Development(respond quickly)
- Reflect Economic Clusters (identified by GOED)
- Establish Partnerships (DWS, GOED, USTAR, Higher Ed, Private)



Cluster Objectives

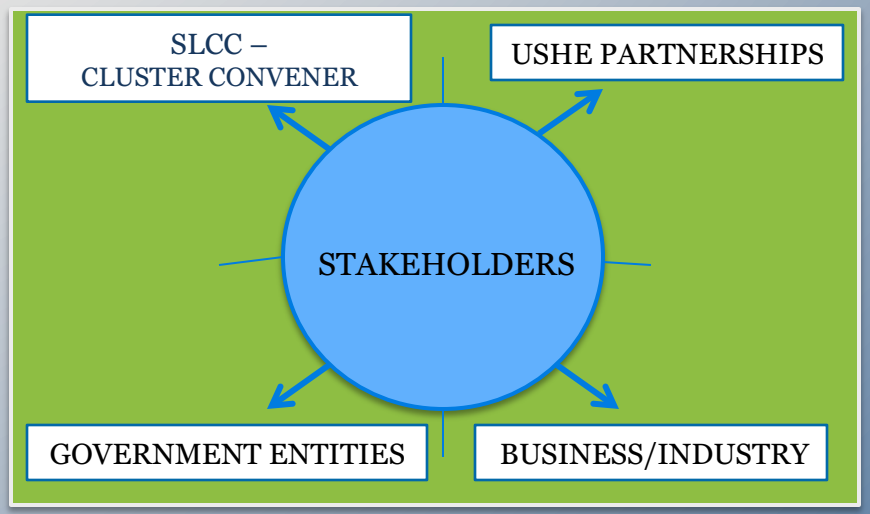
- Accelerate growth in industry clusters that are strategic for Utah
- Enhance the role of higher education institutions as regional hubs of economic activity and as a network of support and expertise
- Integrate, align and leverage resources (across higher education institutions, DWS, GOED, USTAR, and other state agencies)
- Create a template for action that is repeatable and reliable across clusters

Critical Elements for Cluster Success



SLCC's Role As Energy Cluster Convener

Establish a Roadmap for Effective Assessment and Planning



Identify Primary Regional Resources

Identify Key Stakeholders

Evaluate Economic Landscapes for Regulation of Energy Development

Identify Priorities for Energy

Identify Regional Resources & Capacity

ECAP Cluster Goals

- **Short-term:** Expand local Utah companies and recruit out-of-state companies and to invest in generation, manufacturing, technology and efficiency.

- **Long-term:** Utah becomes known for their friendly business practices toward energy development and all of its energy resources.

- **Key Partners:** GOED, DWS, Higher Ed Institutions, Industry, Office of Energy Development, US Dept. of Energy

Phase I/II Energy Cluster Value Chain

Traditional

Conventional: Oil, Gas & Coal

Management: Water, Land & Air

Independence: Diverse Natural Resources & Infrastructure

Alternative

Unconventional: Oil Shale/Sands, Coal to Liquid , CO_2 Enhanced Oil Recovery, CO_2 Sequestration and Nuclear

Renewable: Hydroelectric, Wind, Solar, Biomass/Fuels, Geothermal and Waste Gas/Heat Recovery

Efficiency: Demand-Side Management & Conservation

Energy Cluster Outcomes: Phase I/II

- ✓ **Connect**
  - ❖ Link organizations together to advance synergistic resources, opportunities and capabilities.
  - ❖ Recognize and promote Utah's advantages.
- ✓ **Industry**
  - ❖ **Grow industry supply chains and the various players within them.**
  - ❖ **Promote reaching Utah's Energy Goals.**
- ✓ **Education**
  - ❖ **Support the advancement of workforce development and training efforts.**
  - ❖ **Create an understanding of the energy sectors for the general public through outreach efforts.**
- ✓ **Infrastructure**
  - ❖ Assist with electricity transmission initiatives.
  - ❖ Champion planning and technological advancements in transportation.

Key Recommendations: Economic Development

- ✓ Grow industry supply chains and the various players within them.
  - ➢ Strengthen Utah's ready market position.
  - ➢ Develop competitive advantage in generation and manufacturing.
- ❖ Promote reaching Utah's Energy Goals.
  - ➢ Make doing business for this new industry as uncomplicated as possible.
  - ➢ Identify funding opportunities for emerging businesses.

Key Recommendations: Employment and Education

Employment Snap Shot for Energy Cluster

	2005 (12 month ave.)	2012 (12month ave.)	% Change
# of Employers	1015	1141	12.7%
# of Employees	13,734	20,788	48%
Ave. Annual Wage	$4,487	$4,770	6%

- **Key Employers:** Kennecott Utah Copper, Pacificorp, Newfield Exploration Co, Canyon Fuels Co, Energy West, West Ridge Resources, Halliburton, Boart Longyear, Intermountain Power Services, Chevron Corp, US Magnesium, SII Megadiamond, Questar, Williams (Northwest Pipeline)

- **Key Supportive Employers/Suppliers:** construction, manufacturing, refinery entities, state and federal contracting and regulatory agencies

Cluster as a Foundation for Targeted Workforce Training/Education

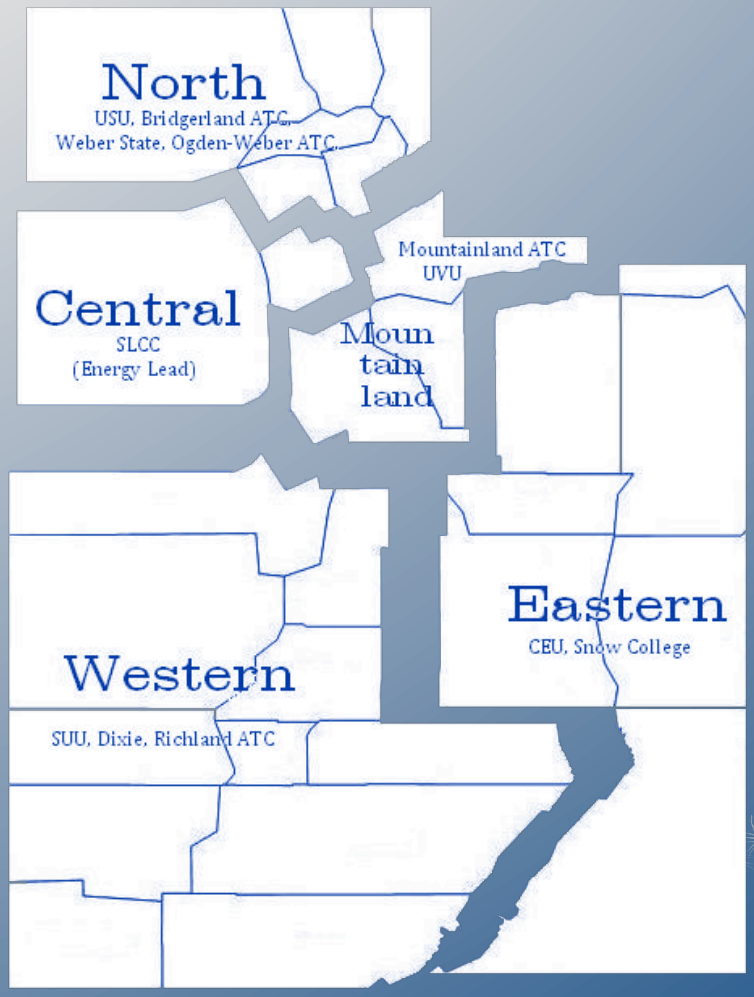
- Dept. of Labor: Utah State Energy Sector Partnership Training 4.6 million total grant award to Utah through DWS
- Dept. of Energy– 2.1 million dollars to Salt Lake Community College for Line Technology and Smart Grid Education
- Dept. of Labor –2.5 million dollars to Salt Lake Community College, Green Construction and Solar Installation

State Energy Sector Partnership Grant

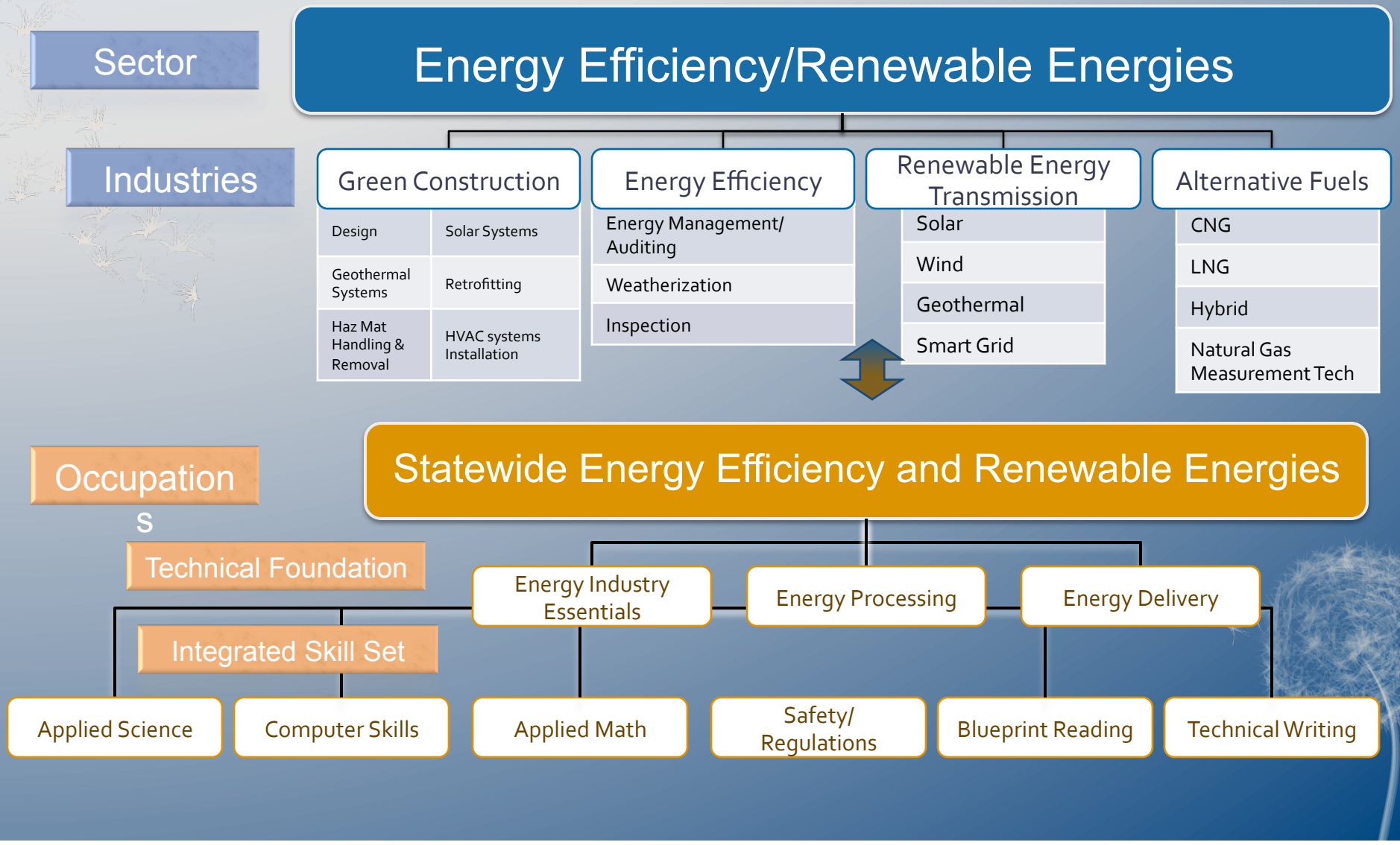
- Create statewide strategy to position Utah as a regional and national leader in energy workforce development
  - Career Readiness Tool—WorkKeys Assessment
  - Consistent Approach to value-add skills training for career advancement
  - Incorporation of specific energy-related skll sets into existing academic programming
- Create seamless career ladders/transitions for a mobile and marketable workforce within the state
- Leverage existing resources and build capacity in emerging occupations related to energy

Develop a "Tiered Training" Program

- Common statewide core training program
- Regional leadership associated with region-specific needs for conventional, unconventional, and renewable energy education



PROPOSED STATE CORE ENERGY CURRICULUM



DOE Smart Grid Training—2.1 million dollars

Foundational Knowledge

- Reading
- Applied Math
- Technical Writing
- Computer Skills

Core Competencies

- Ability to use and maintain tools and equipment in a safe and efficient manner
- Ability to interpret and apply instructions, specifications, blueprints and procedures
- Ability to use various hand/power driven and hydraulic tools and machinery
- Ability to perform operational diagnostic and analytic functions on systems, equipment and components

Education

- High School Diploma or GED
- AS or Trade school training

Industry-Specific

- Independently qualify as both an Outside Operator, Lead Operator, and Maintenance Technician
- Achieve a successful score on the Power Plant Maintenance (MASS) and Plant Operator (POSS) aptitude test

Occupations

Power Plant Operators

Power Distributors

Dispatchers

Load Dispatchers

Line Installers

Line Erectors

Energy Management

Foundational Knowledge

- Reading
- Applied math
- Technical writing
- Computer Skills

Core Competencies

- Evaluate energy use patterns for residential housing and commercial buildings
- Know regulations and policies affecting measure selection
- Select and operate various energy analysis measuring and monitoring devices
- Write energy audit reports that provide energy analysis results and recommendations for energy cost savings

Education

- High School diploma or GED
- AS or AAS Degree
- *Residential Energy Services Network (RESNET) Certified Energy Rater or Building Performance Institute (BPI) credential recommended*

Occupations

Energy Management

Energy Efficiency Consultant

Energy Auditor

Core Competencies

- Perform energy assessments/audits
- Develop energy conservation measures
- Perform energy simulation modeling
- Perform supply side and demand side energy consulting
- Conduct technology feasibility studies

Education

- Bachelor's degree in a related engineering field
- Master's degree in Energy Engineering for career advancement
- *Certified Energy Manager (CEM) credential recommended*

Occupations

Energy Engineer

Energy Efficiency Consultant

Energy Management Engineer

Energy Manager (Engineer)

CEM (Certified Energy Manager) Engineer

ECAP Phase III/IV Recommendations*

- Foster the communication and collaboration that was developed from the ECAP work.
- Enhance the recently established partnerships between academia, industry, and government.
- Evaluate energy policy.
- Review energy education curriculum, ensuring its content remains relevant with Utah's interest as well as ever advancing technologies.
- Support research collaboration.

- *comprehensive report to be distributed

Examples of Implementation and Capacity Building

- ECAP findings used to support Governor's 10-yr Energy Plan
- Integration of ECAP into Office of Energy Development oversight—
- Economic Development:
  - Specific training programs (Green Enterprise Development) to support related business growth and sustainability
  - Integration of related resources such life science and manufacturing entities
- Workforce Education and Training
  - Validation of career readiness assessment through WorkKeys and support for state-wide
  - Established academic and career pathways to include non-credit/credit train

Benefits to Utah's Energy Industry

- Leveraged strengths of all partners
- Effective/efficient use of resources
- Greater opportunity for funding and revenue streams

Questions?